GV-GF Fingerprint Reader

User's Manual

Before attempting to connect or operate this product,
please read these instructions carefully and save this manual for future use.

Contents

Regulatory Notices

FCC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

Class A

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

CE Notice

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

RoHS Compliance

The Restriction of Hazardous Substances (RoHS) Directive is to forbid the use of hazardous materials of production. To meet the RoHS Directive requirements, this product is made to be RoHS compliant.

WEEE Compliance

This product is subject to the Waste Electrical and Electronic Equipment (WEEE) Directive and made compliant with the WEEE requirements.

Caution

- GV-GF1900 / 1901 / 1902 is designed only for indoor usage. Avoid exposing to sunshine or rains.

- To keep GV-GF1900 / 1901 / 1902 in good working condition, it is recommended to have regular maintenance and physical cleaning of the reader.

1.   Introduction

The fingerprint reader GV-GF1900 / 1901 / 1902 can work with GV-AS Controller and GV-ASManager to create a complete access control system. Depending on the model of the fingerprint reader, up to two types of operation modes are supported: **Card + Fingerprint** and **Fingerprint Only**.

Card + Fingerprint Mode:

With the fingerprint reader only, you can enroll and manage users through the supplied Manager Enroll Card and Delete Card along with MIFARE user cards.

The fingerprint templates are stored in the user card. The user gains access by scanning both his finger and his card. The reader compares the presented finger to that of digital template stored in the card. If the finger is successfully authenticated, a signal is sent to momentarily activate the door relay of the controller.

Fingerprint Only Mode:

The fingerprints are enrolled through a **GV-GF1901** reader installed on the Computer running the GV-ASManager software. The fingerprint data are distributed through GV-ASManager to the assigned fingerprint readers installed on GV-AS Controllers for access control.

1.1 Packing List

If any of the items are missing or damaged, contact your dealer to arrange a replacement.
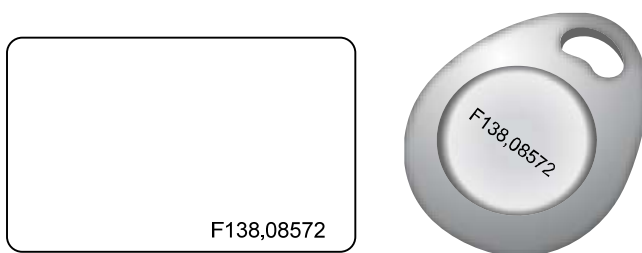
- Fingerprint reader x 1 (with a cable of 100 cm / 3.28 feet)
- Manager Enroll Card x 1
- Manager Delete Card x 1
- Self-Tapping Screw (M3 x 6L) x 2
- Self-Tapping Screw (M4 x 15L) x 3
- Plastic Screw Anchor x 3
- Buzzer Hole Plate
- Security Torx
- User's Manual in CD

1.2 Options

You can order the following optional accessories:

● **User Card**

The user card is an optional item. It comes in two forms: **Card** and **Tag**. They look similar to the following examples. You can find the serial number **Fxxx,xxxxx** at the bottom right corner of the card, or at the center of the tag.

F138,08572

Note: Be sure that your user card has the serial number starting with the letter F; otherwise, you cannot record the fingerprints to the user card.
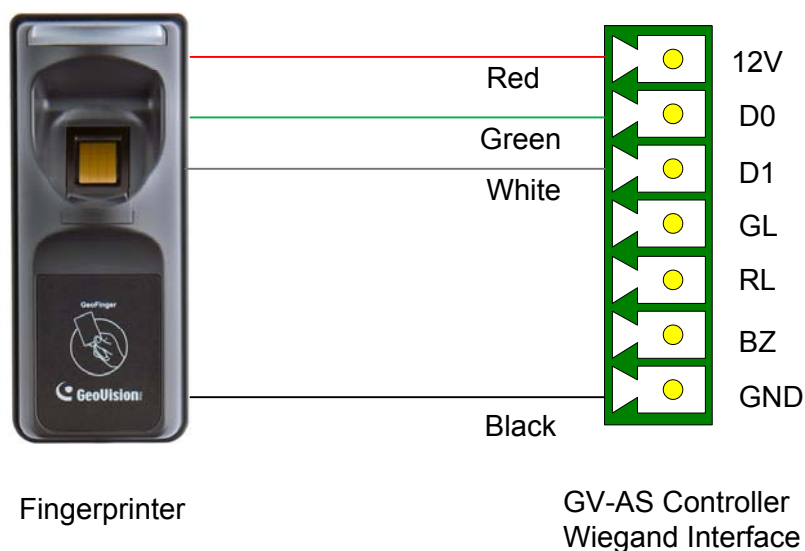
● **PC Service Package**

The package includes one reader mount, and one USB cable used for firmware upgrade. See *6. Upgrading Firmware* later.

2. Connecting GV-AS Controller

Depending on the model of the fingerprint reader, two types of communication links are provided: **Wiegand** and **RS-485**.

2.1 Connecting through Wiegand Interface

The fingerprint reader is connected with an unshielded 9-wire cable of 100 cm / 3.28 feet. Connect these 4 unshielded wires to the assigned pins on the Wiegand interface of the GV-AS Controller: Red, Black, White and Green wires.

Fingerprinter

GV-AS Controller
Wiegand Interface

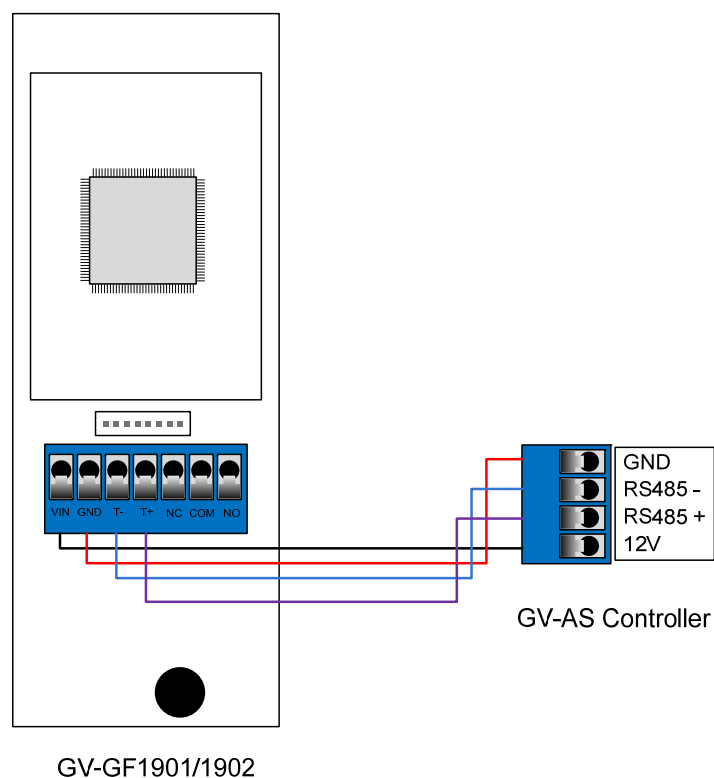The table below shows the wire assignments of the fingerprint reader used for Wiegand connection.

Wire	Red	Black	White	Green	Yellow	Blue	Orange	Brown	Silver
Function	12V	GND	Data-1	Data-0	N/C	N/C	N/C	N/C	N/C

For the wiring of extending distance it is recommended to use the standard RS-485 cable (a twisted pair of 24 AWG wires). The maximum distance of the Wiegand output cable should be restricted to a length of 30 meters (98.43 feet).

2.2 Connecting through RS-485 Interface

Only **GV-GF1901** and **GV-GF1902** readers support RS-485 connection. Use the terminal block on the two reader models for RS-485 connection to the GV-AS Controller.
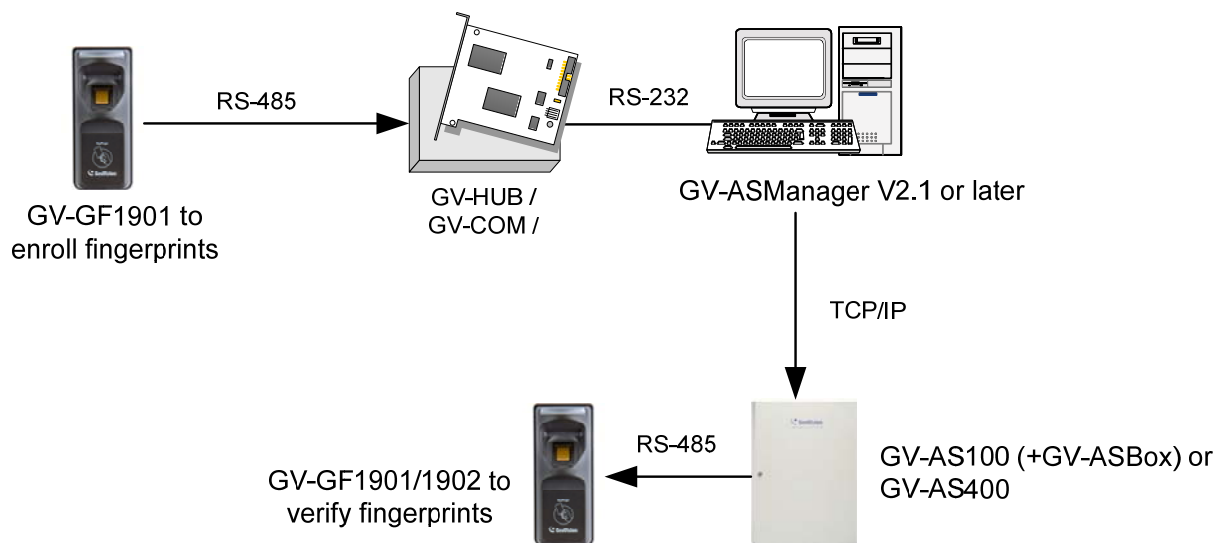

GV-GF1901/1902

The table below shows the pin assignments of the fingerprint reader used for RS-485 connection.

Pin	VIN	GND	T-	T+
Function	12V	GND	RS-485 -	RS-485 +

3. Fingerprint Only Mode

The Fingerprint Only mode must work with the **GV-ASManager** software and the **GV-GF1901** reader to enroll fingerprints. Through GV-ASManager, the fingerprint data are distributed to GV-GF1901/1902 readers installed on GV-AS Controllers. Each fingerprint reader can save up to 1,900 fingerprints for access control. For detailed instructions, see *GV-ASManager User's Manual* .

RS-485

RS-232

GV-GF1901 to
enroll fingerprints

GV-HUB /
GV-COM /

GV-ASManager V2.1 or later

TCP/IP

RS-485

GV-GF1901/1902 to
verify fingerprints

GV-AS100 (+GV-ASBox) or
GV-AS400

4. Card + Fingerprint Mode

4.1 Enrollment

The user's fingerprints are stored in the user card and each user card can store up to 2 fingerprints. The user must gain access by scanning both the user card and the finger.
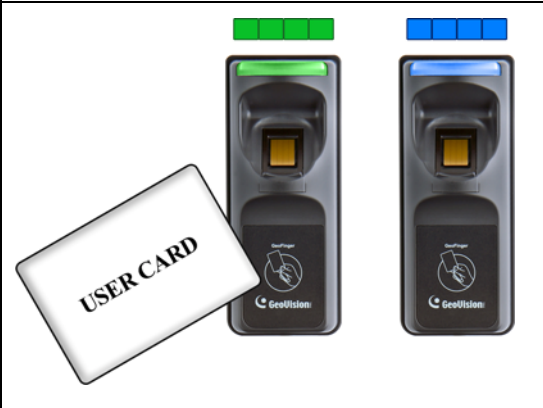
Specifications
- Have access by scanning both the user card and finger.
- Fingerprint templates are stored in the user card.

Cards Required for Enrollment
- Manager Enroll Card
- User Card

Enrollment Procedures

	Step 1: In the standby mode, the light is blue on. Present the Manager Enroll Card. The light starts blinking green.
	Step 2: Present the User Card till the light blinks blue. Or present the Manager Enroll Card to exit the enroll mode.

	Step 3: With the light blinking blue, scan your fingerprint till beep. Withdraw your finger. The light turns green and then blinks blue.
	Step 4: Scan the same fingerprint again till beep, and withdraw your finger. The light again turns green and then blinks green. **Note:** It is required to scan the same fingerprint twice to complete the enrollment.
	Step 5: Repeat Steps 3 and 4 to scan the second fingerprint if needed. The same user card can store up to 2 fingerprints.
	Step 6: Present the User Card to record fingerprints till beep. The light turns green and then steady blue. Then you can use the Card Plus Fingerprint on the fingerprint reader.

Note:

1. You will need the corresponding user card when deleting an individual user. Once you lose the user card, you cannot delete its related user from the reader.
2. The new fingerprints enrolled will replace the existing enrolled fingerprints.

4.2 Deletion

Card data will be deleted from the reader and fingerprint templates will be erased from the user card.

Cards Required for Deletion

- Manager Delete Card
- User Card

Deletion Procedures

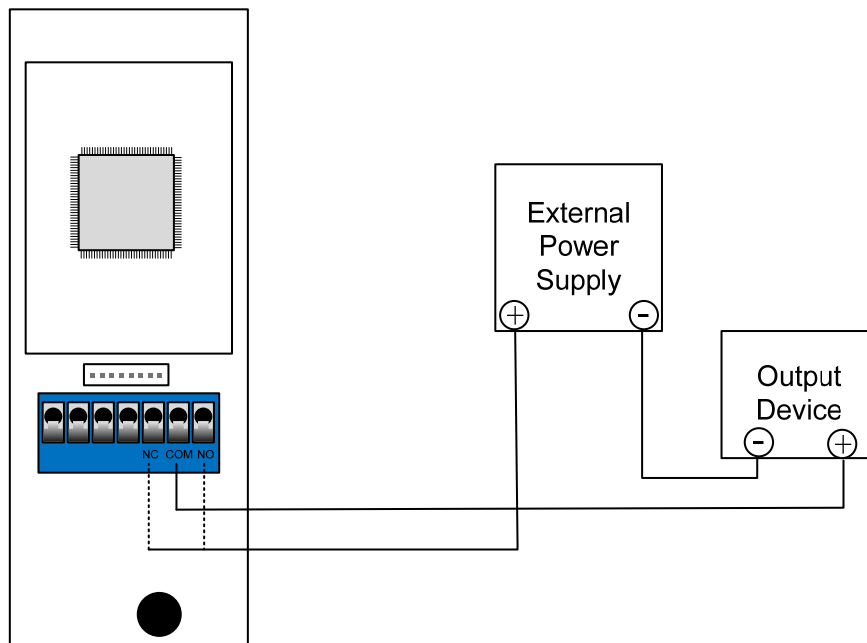|	
	Step 1: In the standby mode, the light is blue on. Present the Manager Delete Card. The light starts blinking red.
	Step 2: With the light blinking red, present the User Card. The light starts blinking green. Present the User Card again to delete all fingerprints stored in the card. When the deletion is complete, the light turns green and then steady blue.

4.3   Fingerprint Reader on Service

After you connect the fingerprint reader to the controller, present the user card. The light on the reader will start blinking blue. Then scan your finger to gain access.

1. If the presented fingerprint matches any record in the card, the light will turn from blue to green. Access signal will be passed to the controller.

2. If the presented fingerprint does NOT match the record in the card, the light will turn from steady blue to blinking red with beeps for three times. Then the light will come back to a steady blue. The reader will not pass access signal to the controller.

5. Connecting an Alarm Device

For the user of **GV-GF1901** and **GV-GF1902**, you can connect one output device like sirens to the reader for warning when the access is granted.

The example below illustrates the connection of an output device to the fingerprint reader. Connect (+) point on the output device to **COM** on the fingerprint reader, connect the (-) points of the output device and the external power supply together, and connect the (+) point on the external power supply to **NO** or **NC** on the fingerprint reader based on the state of the output device.

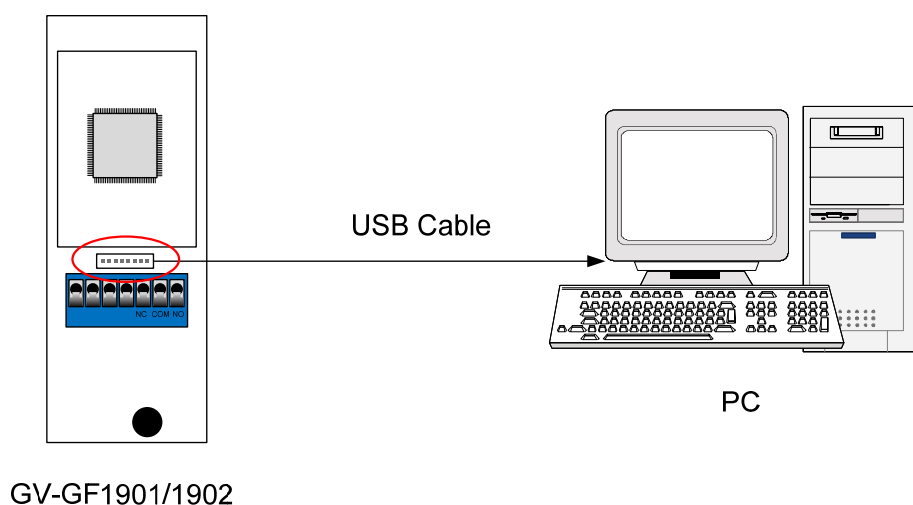GV-GF1901/1902

6.   Upgrading Firmware

For the user of **GV-GF1901** and **GV-GF1902**, you can upgrade the firmware to the new version. Firmware upgrade is done through the **AutoISP** software, which are available on the software CD. The AutoISP software will detect the current version of your fingerprint reader and then automatically upgrade it to the new version.

6.1   Connecting Fingerprint Reader to a Computer

You need to connect the fingerprint reader to a computer for firmware upgrade. For this connection, one of these optional accessories is required: **a USB cable** *(see PC Service Package, 1.2 Options)*, **GV-HUB** or **GV-COM**.

Using the USB Cable
Using the USB cable which is included in the optional PC Service Package, connect the fingerprint reader to a computer as illustrated below.

USB Cable

PC

GV-GF1901/1902

Using the GV-HUB or GV-COM

First connect the fingerprint reader to a computer through a GV-COM or GV-HUB, which provides the RS-485 to RS-232 function. Then you need to power on the fingerprint reader by connecting the **12V** and **GND** wires from the GV-AS controller to the fingerprint reader. The diagram below illustrates the connection among fingerprint reader, GV-COM / GV-HUB and a computer.

6.2   Installing Software

To upgrade the firmware for **GV-GF1901** and **GV-GF1902**, you need to install the **AutoISP** software from the software CD to the dedicated computer. To install firmware upgrade software, follow the steps below:

1.   Insert the software CD to the computer. It will run automatically and the following window pops up.

Figure 6-1

2.   Select **Install Firmware upgrade utility** to install the **AutoISP**. After finishing the installation, you can find the **AutoISP** from the Windows All Programs.
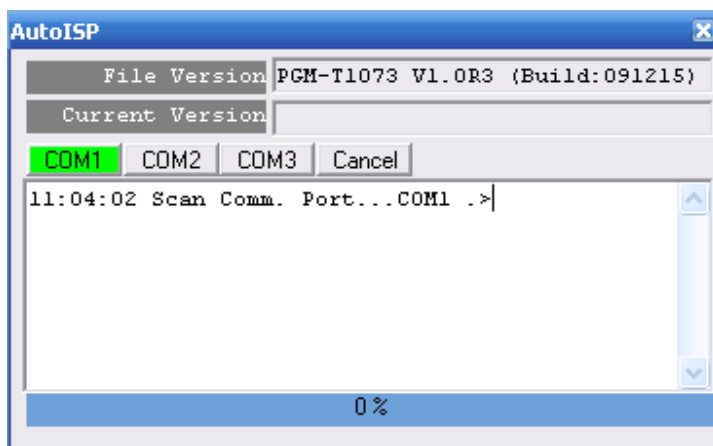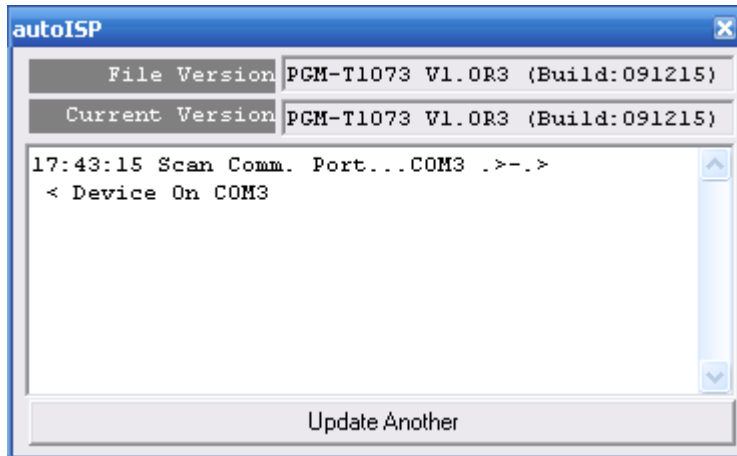
3.   Click **AutoISP**. This dialog box appears.

Figure 6-2

![GeoVision logo]

4.   Wait for the **AutoISP** detecting the COM port that the fingerprint reader is connected to and automatically upgrading the firmware.

5.   When the **AutoISP** automatically finishes firmware upgrading, the current version number shown in the dialog box will match the file version number. Click ![X] to close the dialog box.

Figure 6-3

Specifications

Model	GV-GF1900	GV-GF1901	GV-GF1902
Application	Indoor use only		
Communication Interface	Wiegand 26	Wiegand 26, RS-485	Wiegand 26, RS-485
Sensor	Capacitive	Capacitive	Optical
Sensing Area (H x W)	16 x 12 mm 0.63 x 0.47 (in)	18 x 13 mm 0.71 x 0.51 (in)	20 x 17 mm 0.79 x 0.67 (in)
Output	None	1 Port (240V, 2.5A)	1 Port (240V, 2.5A)
Operation Mode	Fingerprint + Card	Fingerprint Only Fingerprint + Card	Fingerprint Only Fingerprint + Card
Number of Fingerprints	1,900		
Card Type	ISO14443A, MIFARE Class		
RF Frequency	13.56 MHz		
RF Distance	50 mm		
DC Power	DC 7.5V~12V, Max 250mA		
Operating Temperature	0 ~ 65°C / 32 ~ 149°F		
Humidity	10%~90%		
Dimension (H x W x D)	130 x 54 x 43 (mm) 5.12 x 2.13 x 1.69 (in)		130 x 54 x 38 (mm) 5.12 x 2.13 x 1.50 (in)

Ordering Information

GV-GF1900	81-MF190-001
GV-GF1901	81-MF191-001
GV-GF1902	81-MF192-001
User Card	81-MA135-1F1
Tag	81-MK135-1F1
PC Service Package	E70-GFING-001